SMITH

The Financial Condition of the Beet Sugar Industry in the United States

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THE FINANCIAL CONDITION OF THE BEET SUGAR INDUSTRY IN UNITED STATES.

by

Erasmus Edward Smith.

Thesis for the Degree of Bachelor of Arts.

in the

College of Literature and Arts

of the

University of Illinois.

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June 1, 1906.

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ERASMUS EDWARD SMITH

ENTITLED THE FINANCIAL CONDITION OF THE BEET SUGAR INDUSTRY IN UNITED STATES

IS APPROVED BY ME AS FULFILLING THIS PART OF THE REQUIREMENTS FOR THE DEGREE

OF BACHELOR OF ARTS in the COLLEGE OF LITERATURE AND ARTS.

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HEAD OF DEPARTMENT OF Economics.

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INTRODUCTION.

TABLE OF CONTENTS.

Page

Chapter 1, Climatology,------------------3 to 7

Chapter 11, General History of Beet Sugar Industry 7 to 12.

Chapter 111, The Purity of Beets, 12 " 16.

Chapter 1V, Systems of Duties and Bounties abroad and in United States. 16 " 18.

Chapter V, Brussels Convention, 18 " 21.

Chapter V1, Revenue and Tariff Legislation upon Sugar in United States. 21 " 24.

Chapter V11. The Effect of the Tariff Regulation upon the Beet Sugar Industry. 24 " 32.

Bibliography, 33.

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THE FINANCIAL CONDITION OF THE BEET SUGAR INDUSTRY IN UNITED STATES.

INTRODUCTION.

The beet sugar industry in this country has reached a point where it is incumbent upon the national government to secure a complete and accurate agricultural survey of the country in respect to growing beets for the manufacture of sugar. The competition in the beet sugar industry is at the present time so keen, that only those localities, where natural conditions are best, will in the end be found to sustain the beet sugar industry.

The Department of Agriculture is at the present time working through imvestigations and experiments both as to soil and climatic conditions. One of the characteristics of the beet sugar industry is, that it is preeminently an agricultural industry. Other great industries in almost every instance are established in the center of dense population or in the large cities. The beet sugar industry scatters its factories over the country in the very heart of the farming districe. The special character of the raw material, which is not a marketable product in the same sense as other commercial crops, requires the factories to be established as near as possible to the locality where the sugar beets are raised. The benefit of this circumstance will be easily

understood, when one considers how immense otherwise would be the risk of the farmers in raising the crops, were he not benefited by the nearness of the factory. Without this benefit, the beet culture would be of little profit. On the other hand the factories have an equal interest, receiving the beets freshly harvested from the farmer.

It is difficult to name another industry where the mutual interest of the producer of raw material and of the manufacurer are so intimately interwoven. In no country of the world are the local conditions so favorable to the rapid development of an industry as they are to the beet sugar industry in the United States.

As to the manufacture of beet sugar, this is as much a scientific business as the raising of sugar beets. Only experience combined with ceaseless study is able to overcome the difficulties which constantly arise. Sugar beets present so many differences in their compositions_ the result of the character of soil, manure, temperature and climate conditions_ that their culture has to be watched with the utmost care.

The Agricultural Experiment Stations in most states are thoroughly aroused as far as experimental work is concerned. They are willing, with the co-operation of the National Department of Agriculture, to undertake agricultural surveys of their respective localities.

CHAPTER 1.

CLIMATOLOGY.

One of the first things to be considered besides the soil in connection with the beet sugar industry is the climate, as the sugar beet is very susceptible to climate conditions.

The sugar beet zone of the United States has been found to be located in an area which includes the following states,- North Carolina, West Virginia, the eastern shore of Maryland, the state of Delaware, New Jersey, Connecticut, Massachusetts, New Hampshire, Vermont, New York, Pennsylvaina, Ohio, Michigan, Indiana, Illinois, Wisconsin, Minnesota, Iowa, North and South Dakota, Nebraska, Colorado, New Mexico, Utah and California.

The southern limit of this territory is bounded by the mean isothermal of seventy-one degrees Fahrenheit for the summer months of June, July and August. This temperature is considerably higher than the mean temperature of the European sugar beet areas for the same period of time.

In connection with the temperature must be considered the rain fall, the contour and nature of the soil, the possibility of irrigation in arid states, the abundance of sub-soil moisture, the proximity to coal and the facilities for transportation.

In making a study of the particular localities that are adapted to the growth of sugar beets in United States, we will begin with the isothermal of seventy-one degrees Fahrenheit at the Atlantic Coast and continue westward to California.

The elevated areas of the mountain regions of North Carolina and West Virginia affordconditions of temperature and deposits of soil, which are favorable to the growth of sugar beets. A portion of this region has a mean annual rainfall of more than fifty inches. On account of this, the beet sugar industry probably can not be carried on, on a large scale in these states.

The isotherm of seventy-one degrees Fahrenheit enters Maryland at a point about midway along the Atlantic Coast. The character of the soil is mostly sandy. Experiments have shown that with proper fertilization and cultivation the sugar beet would thrive there.

The observations which have been made in regard to the eastern shore of Maryland also apply to the eastern shore of Delaware. New Jersey also falls in this group. The whole state of Connecticut, Massachusetts, and Rhode Island lie in the sugar beet belt. In New York there is a remarkable variety of thermal conditions. In some parts of the state the conditions for growing beets are very favorable.

The north eastern and northern parts of Ohio are well situated for

beet culture. The contour of the land is favorable. The conditions in the north western localities are fairly comparable with those of the state of New York except that the mean isotherm is higher than seventy one degrees Fahrenheit.

A large part of the southern peninsula of Michigan is directly in the heart of the beet belt. The character of the soil is favorable. The data which has been secured in experiments from this part of the state is sufficient proof that this locality is among the best in United States for beet culture.

The northern part of Indiana lies within the beet belt. The soil in northern Indiana is very much like that of Michigan. The beet area, however, is much less than that of Michigan.

The northern part of Illinois lies in the sugar beet belt. The character of the soil of northern Illinois is different from that of northern Indiana and southern Michigan. The soil is mostly a dark prairie soil mixed with clay. This physical condition makes it unfavorable for the sugar beet culture. In Iowa the situation is very similar to that of Illinois.

The southern part of Wisconsin offers a more favorable condition for the culture of beets, than that of Illinois. The results of the experiments which have been carried on in this state furnish evidence of this.

The situation in Minnesota is unfavorable for beet culture, because of the small amount of rain fall. The sugar belt runs through the center of Nebraska. This state is very well adapted for the culture of beets.

Statistics show that Nebraska comes fifth in the production of beet sugar.

The sugar belt runs through Colorado, south of Denver in a southwesterly direction, thence on through New Mexico. The conditions for raising the sugar beet in Colorado are more favorable than those of Nebraska. The conditions in New Mexico are not favorable since irrigation would have to be resorted to, and that would be unprofitable.

Utah lies next within the sugar beet area. This state is very promising. It stands fourth in beet sugar production. The only draw back is the small amount of rain fall, but this is overcome by irrigation. The next state, which falls in the sugar beet belt is Nevada. This state is very unfavorable, as has been shown by experiments.

California lies next in the belt. It is the largest beet sugar producer of all the states. The beet area of this state is confined to the coast regions.

In summarizing, it is seen that the most important states adapted to the raising of sugar beets are California, Michigan, Colorado, Utah, Nebraska, and Wisconsin respectively.

CHAPTER 11.

A GENERAL HISTORY OF THE BEET SUGAR INDUSTRY.

The first attempt to produce sugar from beets in United States was in the vicinity of Philadelphia in 1830. The attempt was without success. Eight years later an attempt was made at North Hampton, Massachusetts. This attempt was not successful. In 1863 a factory was established at Chatsworth, Illinois. This attempt to produce sugar from beets was not successful, as the location was very unsatisfactory, both because of soil and climate. Later the plant was moved to Freeport, Illinois and from this place to Black Hawk, Wisconsin. From Black Hawk a portion of the plant was moved to California. These attempts to obtain sugar from beets were unsuccessful, because there was more or less inefficiency in factory management. A lack of interest on the part of the farmers was also a hinderance to the developement of the industry.

The beet sugar industry in California in its early stages was at a disadvantage as the farmers did not know the proper stage of maturity at which to harvest the crop. In the years from 1875 to 1880 beet sugar factories were established at Portland, Maine; Frankfort, Massachusetts; one in New Jersey and another in Delaware. In California, the Alvorado plant was established in 1870. In 1873 one was established at Sacramento.

In 1874 another was established at Istleton, California. The last two factories failed partly because of the lack of interest and knowledge on the part of the growers, and partly because of poor factory management.

The industry was practically at a standstill in California until 1891. The amount of beet sugar produced in that year was eight million one hundred seventy five thousand, four hundred pounds. The next year it was increased to twenty-one million, eight-hundred one thousand, three hundred twenty-two pounds. Since then the production has steadily increased until the present time. In the year 1904, California produced one hundred thirty-five million, seven hundred sixty two thousand pounds of sugar. This was the largest production for any state up to that time. California today has seven factories.

Utah and Nebraska were the next states to succeed in the beet sugar Industry. Utah did not make such rapid progress as California. This was due to the fact that a great portion of the land of Utah is irrigated. The first statistical report of Beet Sugar from Utah was in 1891. In that year one million, ninety-four thousand, nine hundred pounds of sugar were produced. In the next year, but little advance was made as only one million, four hundred seventy-three thousand, five hundred pounds of sugar were manufactured. The production of beet sugar increased more rapidly in the nineties. In the year 1904, Utah produced forty six million, three hundred one thousand, pounds

of sugar. At the present time it stands fourth in the manufacture of Beet Sugar and has seven Beet Sugar factories.

The first attempt to establish a beet sugar factory in Nebraska was at Grand Island in 1889. This factory was aided by a gift of land from the state. In addition to this gift, the state gave a bounty of one cent per pound for all beet sugar manufactured within its borders. This was very encouraging both to the beet raisers and manufacturers. In 1891 another factory was established at Norfolk. In this vicinity the farmers were slow to take hold of the beet culture. The state bounty was repealed in 1892. This was a decided draw back to the industry. The factories had been giving five dollars per ton for beets, but after the repeal of the bounty, the price fell to four dollars per ton. The result of the fall in price was, that not enough beets were produced to run the factories. In 1895 the state again came to the rescue of the beet manufacturers by giving a bounty of five-eighths cent per pound on all sugar manufactured in the state. This stimulated the beet production. In 1897 the bounty was repealed and since that time no bounty has been given. In spite of this fact however the industry has progressed steadily up to the present time. In 1890 the production of beet sugar in the state was two million, seven hundred thirty four thousand, five hundred pounds. For the year 1904, Nebraska produced nineteen million, four hundred eighteen thousand pounds of sugar. At the present time it stands

fifth and has three factories.

The production of beet sugar was new in Colorado until 1899. In that year the state offered as a bounty for beet sugar that was manufactured within its borders, one-fourth cent per pound. The industry has developed in this state to such an extent, that at the present time it ranks third in the production of sugar. In 1904, eighty-eight million, six hundred twenty-eight thousand pounds of sugar was manufactured in these states. In this same year nine factories were operating in the state.

The culture of beets was not introduced into Michigan until 1898. Michigan has never paid a bounty, but in spite of this fact the culture of the sugar beet has progressed steadily . It has advanced so rapidly that in 1904 Michigan stood first in the production of sugar beets. California stood first in the manufacture of beet sugar. This was due to the better grade of beets that was first raised in California. Michigan, however, stands second in the manufacture of beet sugar. Its yield of sugar in 1904 was one hundred twenty-seven million, eight hundred twenty-three thousand pounds. In the same year, it had twenty factories within its border.

The other sugar beet growing states of United States are of less importance than those just mentioned. Naming the states in order of their rank in the production of beet sugar, it is seen that Wisconsin holds sixth place, next to Wisconsin comes New York, then Idaho, Minnesota,

Washington, Ohio, and Oregon respectively. The bounties given by the various states to stimulate the raising of sugar beets and the manufacture of sugar shows the interest that those particular states have taken in the industry. Some states granted land, some exempted the beet sugar factories from taxation. In the year 1898 alone, New York, Minnesota, South Dakota and Washington each gave a bounty of one cent per pound upon all beet sugar manufactured within their respective borders.

CHAPTER 111.

THE PURITY OF BEETS.

One of the first things to be considered in connection with the sugar beet after the soil and climatic conditions is their purity. This is very important because beets that contain twelve per cent or less of sugar are rejected by most all the factories. The two things to be considered are the purity coefficiency and the per cent of sugar in beets. By purity coefficiency we mean the parts of pure crystallizable sugar in a beet, and by the per cent of sugar in beets; the amount of pure crystal sugar that this crystallizable sugar will produce.

The United States Department of Agriculture has been experimenting with the choicest of sugar beet seed that can be obtained abroad. The seed is sent to practically all the states. Experiments are made with these different grades of seed and the data is collected and published.

The experiments with the different grades of seed from abroad began in earnest in 1890. In that year the government purchased three tons of sugar beet seed of various varieties from the different sugar beet growing countries of Europe. The seed was put up in one pound packages and sent to over one thousand different persons in the sugar beet areas. The experiments from these packages of seed did not prove a very great success. This was due

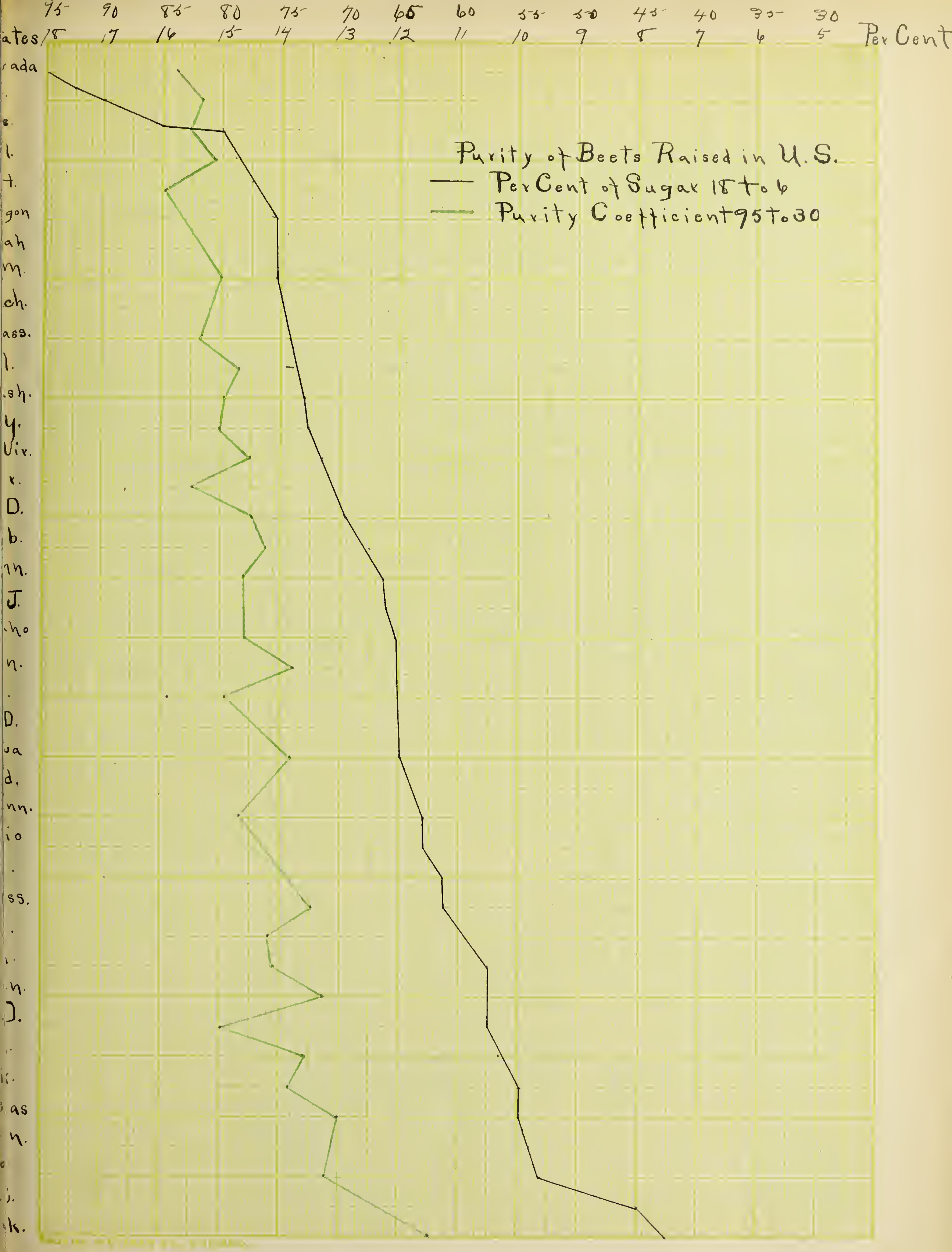
to the fact that the farmers did not carry out the instructions to the fullest, which were given them by the agricultural department. In 1893 there were two thousand, four hundred twenty-eight packages of sugar beet seed distributed to three hundred forty eight different farmers in practically every state in the union.

The table below gives the average weight per beet, the average per cent of sugar in the beet, and the average per cent of purity coefficiency of the beets that have been raised in the different states.

States	Ave. weight per Beet.	Ave. % Beet Sugar.	Ave. % Coefficiency
California	20 ounces	13.6	76
Illinois	17 "	13.1	75
Indiana	14 "	13.1	78.9
Iowa	18 "	13.3	73.7
Kansas	27 "	11.4	73.8
Maryland	19 "	11.4	79.1
New Mexico	13 "	17.2	82.
New York	21 "	15.	82.4
North Carolina	23 "	9.	75.3
North Dakota	28 "	10.	74.
Ohio	22 "	13.8	79.1

State	Ave. weight per Beet.	Ave % Beet Sugar	Ave. % Coefficiency
Oklahoma Ty.	10 ounces	11.8	72.5
Pennsylvania	18 "	13.8	79.5
Rhode Island	21 "	11.9	74.3
South Carolina	17 "	9.9	79.9
South Dakota	17 "	15.1	83.2
Tennessee	11 "	10.	71.9
Texas	22 "	12.6	76.5
Utah	20 "	14.3	81.1
Vermont	22 "	14.2	84.1
Virginia	21 "	11.6	76.2
Washington	27 "	13.7	80.
West Virginia	19 "	15.4	80.4
Wisconsin	15 "	15.	83.3
Wyoming	19 "	17.2	82.3

The per cent or degree of purity of the juice of the sugar beet is influenced chiefly by the amount of salts represented by the ash which is obtained by the ignition of the same. In soils highly impregnated with mineral substances, such as are often found in our western states, the per centage of ash found will be very high and there will be a corresponding depression of


95 90 85 80 75 70 65 60 55 50 45 40 35 30
ates/18 17 16 15 14 13 12 11 10 9 8 7 6 5 Per Cent
Purity of Beets Raised in U.S.
Per Cent of Sugar 18 to 6
Purity Coefficient 95 to 30
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the purity coefficient. In lands which have been long cultivated and scientificaly treated from an agricultural point of view, the percentage of ash in the sugar beet will be diminished and the purity coefficient correspondingly raised.

The noticeable thing about the chart is that the states which have a high percentage of sugar in beets also have a high percentage of purity coefficient. It will be noted that those states which have a high percentage of sugar and impurity coefficiency are located in the north central, north western and western part of United States, while those states which have a correspondingly low percentage, are located in the southern and north eastern parts of United States.

CHAPTER lV.

SYSTEMS OF DUTIES AND BOUNTIES ABROAD AND IN UNITED STATES.

In Germany the most important period of taxation and bounties began in 1888. From 1888 taxation upon sugar beet was lowered fifty-three percent from what it had been in previous years. An import duty was laid upon all sugar imported. She also gave rebates upon all beet sugar exported according to the purity of the sugar.

In France, a new law went into effect in 1891. In general the new law read like this,- "when the actual yield of any factory had not exceeded ten and five-tenths kilograms of refined sugar per one hundred kilograms of beets, the whole of the excess is admitted to the benefit of the reduced duty." The tax on imported sugar was sixty francs per one hundred kilograms of beets. There was an extra tax of seven francs per one hundred kilograms for all Beet Sugar imported. The following rebates are the premium received by the French manufacturers who export beet sugar. If the beet yield was eleven percent of sugar, the premium amounted to eight and eighty five hundredths francs per one hundred kilograms. If the yield was ten percent, the premium amounted to eight and twenty five hundredths francs per one hundred kilograms. If the yield was nine percent the premium amounted to five and five tenths francs per

one hundred kilograms. In Austria Hungary the duties on imported sugar were as follows,- It was the same for cane as for beet,- on all white sugar fifty francs per one hundred kilograms. Exported sugar received the following premiums,

Per 100 kilograms of sugar polarizing from	88 to 93	3.22	Francs
" " " "	93 " 99.5	3.44	"
" " " "	99.5" 100.	4.94	"

The annual maxium of premiums was not to exceed five million florins or ten million seven hundred fifty thousand francs. If the premium on exported sugar exceeded this sum, the excess is to be reimbursed by the sugar factories in proportion to their production. A bond was given by the factories to secure the reimbursement. This bond was eleven thousand florins or twenty three thousand, six-hundred fifty francs for each sugar factory.

In Russia, the sugar law which went into effect contained the following provisions. The import duty on refined sugar was ninty-seven and sixty eight hundredths francs per one hundred kilograms and on brown sugar seventy three and twenty-six hundreths francs, per one hundred kilograms. The minister of finance had authority to lower this duty if the price of sugar reached a certain point at St. Petersburg. The excise duty on sugar for consumption amounted to seventeen and twenty-seven hundredths francs per one hundred kilograms.

CHAPTER V.

THE BRUSSELLS CONVENTION.

The source of development in Europe since 1888 in regard to beet sugar has been influenced by legislation. In some cases the expansion of the industry was encouraged, in others it was restricted. Legislation affecting the industry has been similar in results throughout continental Europe. Its effect has been in general to confine the market of each country to domestic sugar and to cause high prices with-in the country of production. This limited domestic consumption. The immediate result was however to lower prices on the world's market. Competition from foreign sugar in the markets of continental Europe was prevented by fixing a rate of duty on imported sugar higher than the excise on the domestic production. The amount of the excise which was imported solely for purposes of revenue, determined the minimum limit of domestic prices. The protective import duty on the other hand fixed the maximum to which prices might be carried without incurring foreigncompetition.

The production of beet sugar increased much more rapidly than the domestic consumption, and it became necessary to market the surplus abroad. This was accomplished either by exempting from excise the sugar intended for exportation or by refunding in the form of a draw back the excise on all sugar

exported. The latter method was first used. The draw back was frequently more than the original excise collected. The result was that it carried a concealed export bounty. The indefinite amount of the hidden bounty proved unsatisfactory. The system was changed however by all the important exporting beet sugar countries of Europe,except Belgium, before the regulations of the Brussel's Convention of 1903 went into effect.

In Russia, the amount of the draw back was limited to the excise actually paid. France, Germany, Austria Hungary, Belgium and Holland abolished the revenue tax and exempted from excise, sugar destined for exportation. Germany, Austria Hungary, Belgium and Holland granted direct bounties after abolishing the excise tax. Russia and France gave priviliges that were equivalent to indirect bounties.

Concluding from the above facts it could be readily understood that some international agreement should be put forth whereby the different sugar beet raising countries of Europe could each stand upon an equal footing with foreign competition. This fact brought about the Brussels Convention of 1903. This convention was held to equalize all legislative aid granted directly or indirectly to export sugar. It made no attempt, however, to modify the strictly internal regulation of the sugar trade. In order to eliminate all regulations that might have the effect of granting governmental aid to export sugar, the Brussels Convention prohibited all bounties on exportations. This includ-

ed the direct or indirect bounties on production, special exemptions from duty and excessive drawbacks. It also limited the excess of import duty over the consumption tax.

The convention thus abolished all direct aid to the sugar industry and even all discrimination in the domestic market against foreign sugar beyond a fixed point. The latter provision was not to be inforced against the nonexporting countries, Sweden, Italy , and Spain.

The convention included Germany, Austria Hungary, France, Belgium, Holland, Sweden, Italy, the United Kingdom, Persia and Luxenburg. Spain did not ratify the convention. Denmark and Russia did not take part. In order to enforce the provisions of the convention, a commission was appointed to ascertain how far the legislation of various countries enforced the rules laid down. These investigations are being carried on at present.

CHAPTER V1.

REVENUE AND TARIFF LEGISLATION UPON SUGAR IN UNITED STATES.

The duty on sugar immediately after the war was mainly for revenue. It was not levied in order to protect the young beet industry, because at that time the beet sugar industry was practically unknown.

In 1872 the horizontal reduction upon the duty diminished the revenue. The lowering of the duty was done for this reason only. In each of the fiscal years 1870, 1871 and 1872, the surplus revenue after paying all the appropriation and interest on the public debt, amounted to one hundred million dollars.

The remission of the duty came in 1890. The duty had been, in the main, a purely revenue duty. The receipt from sugar was very large, as nine tenths of the sugar consumed in the country at that time was imported. The revenue from sugar was the most important single item in the revenue from customs. In the period immediately preceding 1890, the United States was embarassed by a large surplus in the treasury. The situation in this respect being again similar to that of 1870 and 1872. The duty on sugar averaged about two cents a pound, on the imported grades chiefly.

The Mill's bill of 1888 proposed a reduction of about fifteen per-

cent. The senate bill of the same year proprosed and cut the rate to about one half of the duty then in force. There was, however, a general agreement that some reduction should be made. The McKinley act went further,-it admitted all raw sugar free. On refined sugar a duty of one half cent per pound was retained. This was to protect the domestic sugar refineries. This duty was criticised by the general public to some extent, because it was thought that the sugar trust was using its influence to some extent. The tariff system of 1890 by making the duty on refined sugar higher than that on raw , left the situation the same as it was previous to 1890. With the free admission of raw sugar came a bounty to domestic sugar producers at the rate of the former duty, that is to say two cents per pound. The change in one sense, was immaterial to the domestic sugar producer. He must sell his sugar at a lower price, but he gets a bounty which makes up the loss. So far as ease of collection goes the bounty is less advantageous than the duty. The benefit of the duty came to the manufacturer in the shape of a higher price. The benefit of the bounty was secured by a somewhat troublesome process which the manufacturer had to go through before he secured the bounty.

The complete remission of the duty was undoubtedly determined upon as a means of gaining popularity for the new teriff act in the west, where highest duties on manufactured articles might be difficult to present.

By the teriff act of 1894 the duty on raw sugar was changed from

a specific to an ad-valorem duty of forty percent. One eighth of a cent per pound was retained upon refined sugar in addition to the forty percent ad-valorem. This one eighth cent per pound was made to offset the loss in weight on refined sugar, which was made from the dutiable raw sugar. There was also an extra one tenth of a cent on refined sugar coming from those continental countries like Germany, which gave an export bounty and whose competition was to be seriously dreaded.

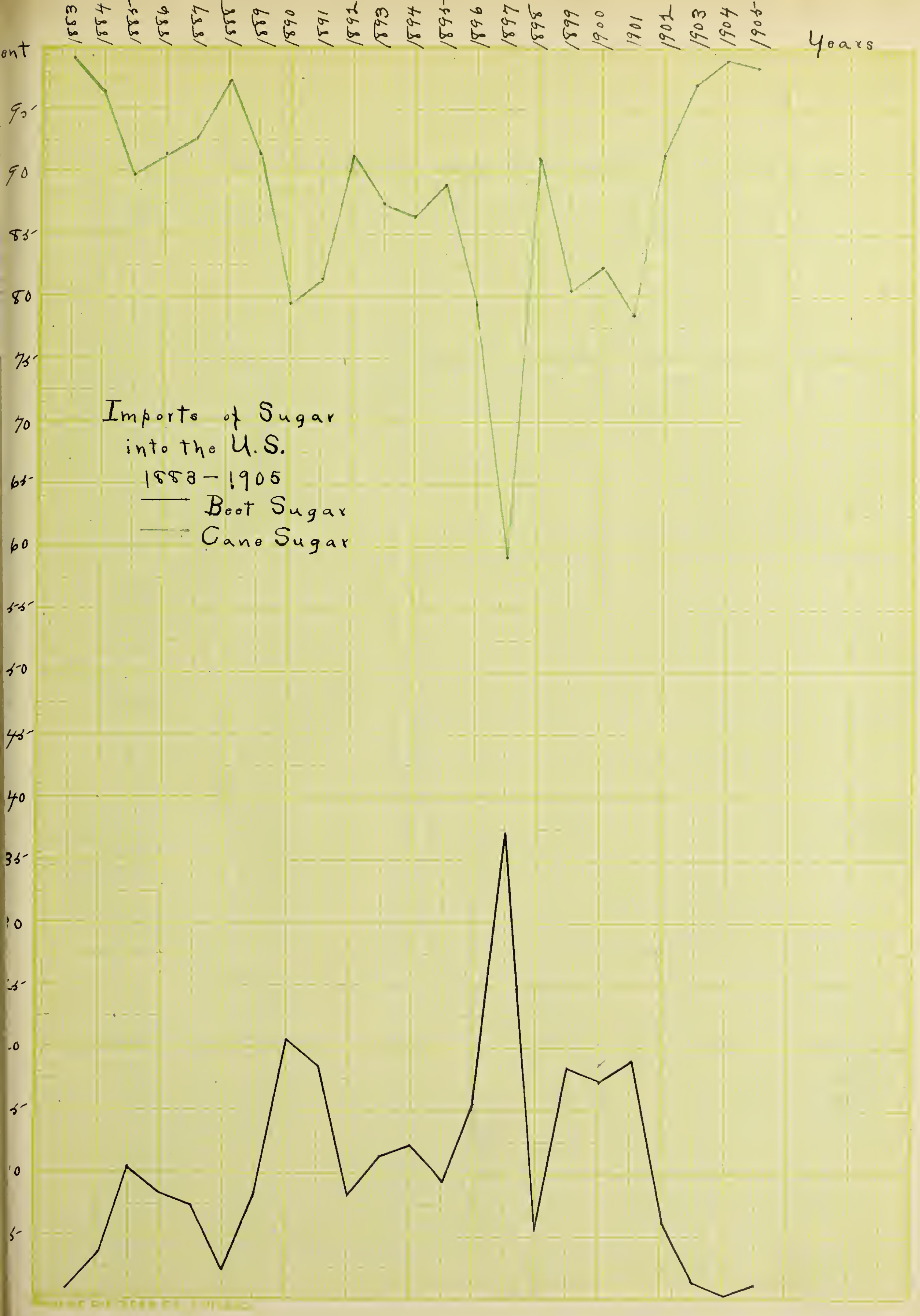
In the tariff act of 1897, the duty on sugar was changed from ad-valorem to spacific. The result was that it was practically doubled. The minimum duty was one cent per pound on sugar testing seventy five degrees and under. The rate was advanced by stages, until it reached one and sixty-five hundredths cents per pound on sugar testing ninety-five degrees. On refined sugar the duty was made one and ninety-five hundredths cents per pound.

CHAPTER V11.

THE EFFECT OF THE TARIFF REGULATION UPON THE BEET SUGAR INDUSTRY.

The production of beet sugar began in earnest in 1890 which has already been stated. The amount of the beet sugar produced in that year was twelve million, four thousand, eight hundred thirty eight pounds. In the year 1904 the production of beet sugar was over four hundred sixty-six million pounds. This shows a remarkable growth in the Beet Sugar Industry. The capitalization of the beet sugar has increased steadily with the increasing production of the beet sugar. In 1879 the capitalization was only three hundred sixty five thousand dollars. At that time there were only four factories in the United States. In 1904 the capitalization was over twenty one million dollars, and there were forty six factories in operation.

The duty upon sugar before 1891 had been practically for revenue purposes, except the McKinley act, which was mainly for the protection of the beet sugar industries. The McKinley act, however, left the protection of the beet sugar industry as it had been in previous years.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Imports of Sugar
into the U.S.
1883 – 1905
Beet Sugar
Cane Sugar

The following table shows the percentage of raw sugar imported into the United States from the leading sugar countries from 1883 until 1904.

Years.	From Cuba (Cane)	From Dutch East Indies. (Cane)	From Hawaii (Cane)	From Germany (Beet)	From other Countries.
1883	53.41	.22	5.35	.76	40.26
1884	43.23	.23	4.54	2.66	49.34
1885	41.53	.28	6.24	8.55	43. 90
1886	45.	.56	7.12	7.56	39.76
1887	44.47	.56	6.96	7.03	40.98
1888	44.78	.23	8.46	1.91	44.62
1899	37.37	3.11	8.81	7.36	43.35
1890	35.49	3.82	7.65	17.45	35.59
1891	41.12	3.92	8.97	13.19	32.80
1892	56.01	3.98	7.42	4.89	27.80
1893	49.39	4.92	7.73	8.72	29.24
1894	49.64	6.72	7.58	8.27	27.79
1895	52.79	7.98	7.80	8.59	23.14
1896	29.47	15.31	9.50	12.13	33.59
1897	12.21	13.44	9.14	32.02	33.19
1898	17.	23.15	19.30	5.33	34.62

Years.	From Cuba (Cane)	From Dutch East Indies. (Cane)	From Hawii (Cane)	From Germany (Beet)	From other countries
1899	16.94	25.18	11.80	16.72	29.36
1900	17.61	29.01	12.60	14.70	26.08
1901	23.42	16.58	14.72	14.70	30.58
1902	25.60	16.56	18.74	5.27	33.83
1903	46.40	17.27	15.01	1.45	19.87
1904	59.02	9.19	15.74	.05	16.00

The following table shows the production of beet sugar in United States, also the number of factories and area of land cultivated for beets for the years from 1891 to 1904.

Years.	Number of factories	Number of areas in cultivation.	Pounds of sugar produced.
1891-92	6	7,155	12,004,838
1892-93	6	13,128	27,830,288
1893-94	6	19,645	45,191,296
1894-95	5	19,538	45,600,000
1895-96	6	22,948	65,453,000
1896-97	7	57,239	84,810,000

Years	Number of factories	Number Acres in cultivation.	Pounds of sugar produced.
1897-98	9	41,242	90,491,670
1898-99	15	37,400	72,735,000
1899-00	31	135,305	163,458,075
1900-01	34	132,000	172,164,000
1901-02	39	194,725	365,492,000
1902-03	44	259,513	437,837,000
1903-04	53	292,293	466,222,000

The beet sugar industry made rapid progress from 1891 until 1894. The progress,however, was not so great as it might have been, as the free sugar law of 1890 offered a great stimulus to Europe's established beet sugar factories at the expense of the struggling industry in the United States. Our two cent bounty was not enough to keep out competition. Mr. Herbert Mynek remarks in his book," The American Sugar Industry," that free sugar and a bounty at that time of the industry was one of the greatest economic errors ever committed.

The Wilson Tariff of 1894 put an ad-valorem duty upon raw sugar of forty percent. This did away with the free admission of sugar, and thus stimulated our beet sugar industry to some extent. Statistics show that

during the few years that the Wilson Bill was in effect, the production of beet sugar increased from forty-five million, one hundred ninety-one thousand two hundred ninety-six pounds in 1894, to ninety million, four hundred ninety-one thousand, six hundred seventy pounds in 1897.

The Dingley Tariff of 1897 was considered as a just measure by the beet sugar producers of United States. The Dingley Bill changed the duty of 1894 to a specific. In spite of the fact that this bill protected our home producers of beet sugar more than did the Dingley Bill, our industry suffered from competition in 1898, more than it had in previous years. This was because of two things. The European countries were giving export bounties to their beet sugar producers. As a result of this, the European beet sugar producers could thus more easily compete with our sugar industry. Again the foreign export bounties stimulated the production of foreign sugar for exportation so that the market was soon overloaded. This surplus sugar was dumped into United States at a price that the United States producers could not compete with. As a direct result of this, a falling off of the production of beet sugar can be noticed in the year 1897 to 1898. Statistics show that in the year 1897 the production of beet sugar was ninety million, four hundred ninety thousand, six hundred seventy pounds while in 1898 it was only seventy-two million, seven hundred thirty-five thousand. Germany was the principle exporter of this surplus supply of sugar. In the year 1896 to 1897 United States exported thirty-two and two hundredths percent of its total im portation

of sugar from Germany. The remarkable fact is that, in the following year, we exported only five and thirty-three hundredths percent of our total importations of sugar from Germany.

The Brussels Convention of 1903 had regulated effectively the sugar market of the world as was previously stated. The United States was benefited by this regulation, as it caused price of sugar to advance.

Sugar at the present time is admitted free into the United States from Hawaii. This does not effect the price of sugar in United States as the amount of sugar imported from Hawaii runs from five and thirty-five hundredths to twelve and thirty-hundredths percent of the total amount imported. The cost of producing sugar is about twenty percent less than it is in the United States. This means more money for the producer of sugar in Hawaii. The reduction of twenty percent in 1903 upon the sugar imported from Cuba will have more effect as to the regulation of the price than the free importation of sugar from Hawaii, as Cuba now imports over fifty percent of the total importation of sugar.

The competition of sugar in United States is not so great as to allow the price of sugar to decline sufficiently to invite foreign competition. At the present time there are only two important sugar manufacturing companies in the United States. These are the American Sugar Refining Company, and the American Beet Sugar Company. The American Sugar Refining Company owns a controlling interest in the following sugar companies;-

Alma	Sugar Company	capital stock	$ 650,000
Saginaw	"	"	750,000
Valley	"	"	650,000
Boy City	"	"	1,000,000
Tonas	"	"	750,000
Lebewaing	"	"	650,000
Landoc	"	"	800,000
Peninsula	"	"	1,000,000
Menominee	"	"	800,000

The American Beet Sugar Company owns and controls over twenty-eight beet sugar factories. It also has interests in other beet sugar companies.

In the manufacture of beet sugar there is only one by-product. This is the pulp which is left after the sugar has been pressed out of the beets.

The beet pulp has been found to be very advantageous for the feeding of cattle in European countries. It is not, however, fed to cattle on a very large scale in United States. The reason is, because there are so many other available foods for feeding and fattening cattle. The experiments that have been made in feeding beet pulp to cattle have not been very successful. The pulp undergoes an organic change, which is very dangerous to

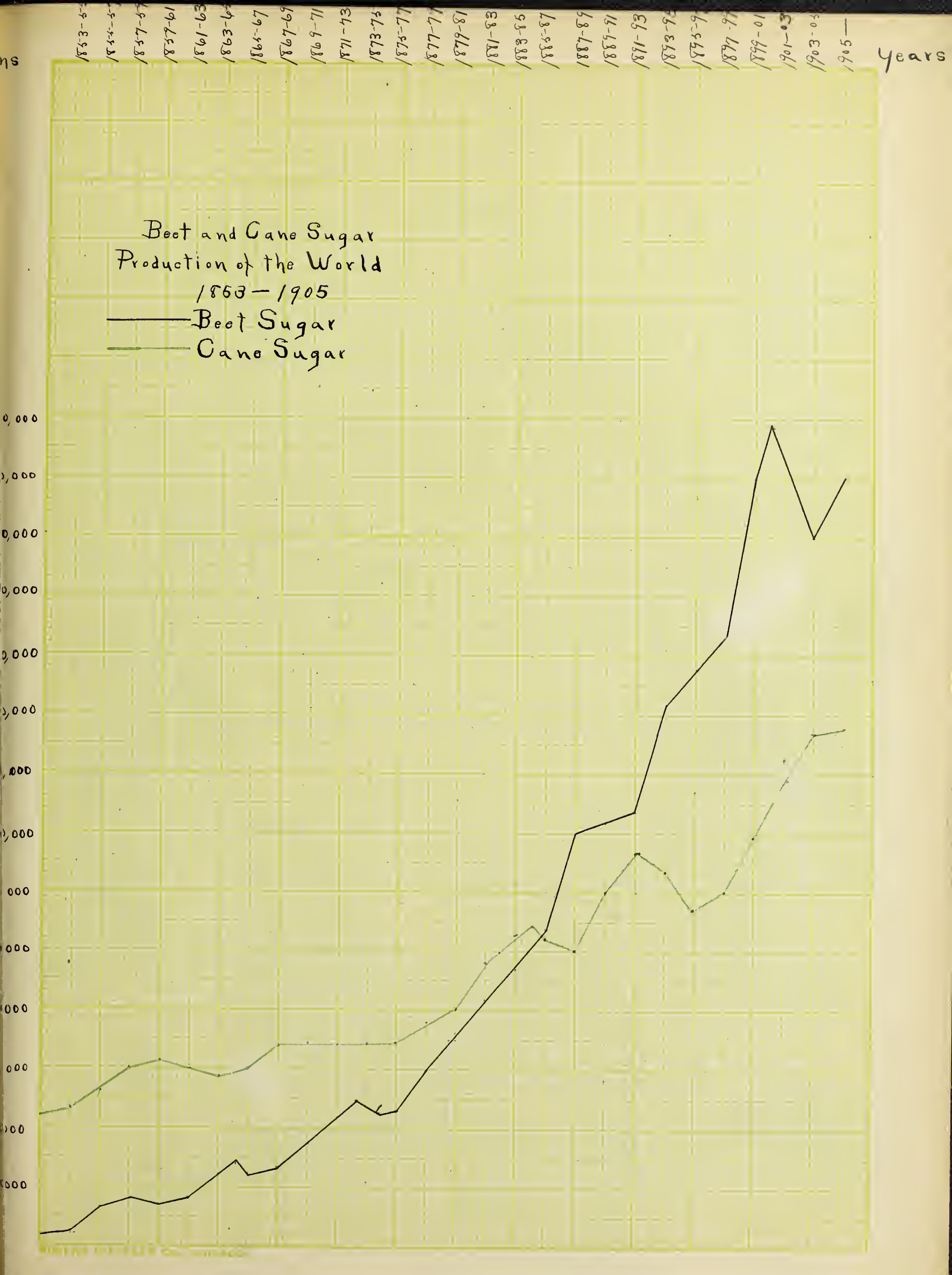
cattle and produces what is known as a pulp malady.

In conclusion,we cannot say that the high duty upon sugar in United States has stimulated the raising of sugar beet and the manufacture of beet sugar was anticipated in the early nineties. At the present time the consumption per capita of sugar is over sixty-three pounds, having raised from twenty-eight and nine tenths pounds since 1867. United States has the largest consumption of beet sugar per capita of any country except England. The consumption per capita in England is over eighty-seven pounds. The tariff has fluctuated to such an extent that it scares capital away from the beet sugar industry. There is no reason why United States should not be a great, if not the greatest beet sugar producing country in the world.

The meddling of the tariff question seems without a doubt, to have produced some decided effects. Out of the total number of beet sugar manufacturies six are lying idle,- Three are located in California and three in Michigan. The result is that farmers do not like to speculate upon a crop of beets when they know that if the grade falls below a certain point, the beets will not be accepted. The fact is, they raise some other crop instead, in which they are confident of a certain return.

We cannot say that the raising of sugar beets has gotten beyond the experimental stage. The farmers who raise the beets use all kinds of labor saving implements for the cultivation. If there is any one thing

required in the beet field it is labor and plenty of it. In the European countries the culture of beets is done mostly by hand, the result being that their beet crops are always up to the standard mark. For this reason their beet crop is to them what our corn crop is to the United States.


Beet and Cane Sugar
Production of the World
1853—1905
Beet Sugar
Cane Sugar
Years
1853-5
1855-5
1857-5
1859-61
1861-63
1863-6
1865-67
1867-69
1869-71
1871-73
1873-75
1875-77
1877-7
1879-81
1881-83
1883-85
1885-87
1887-89
1889-91
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